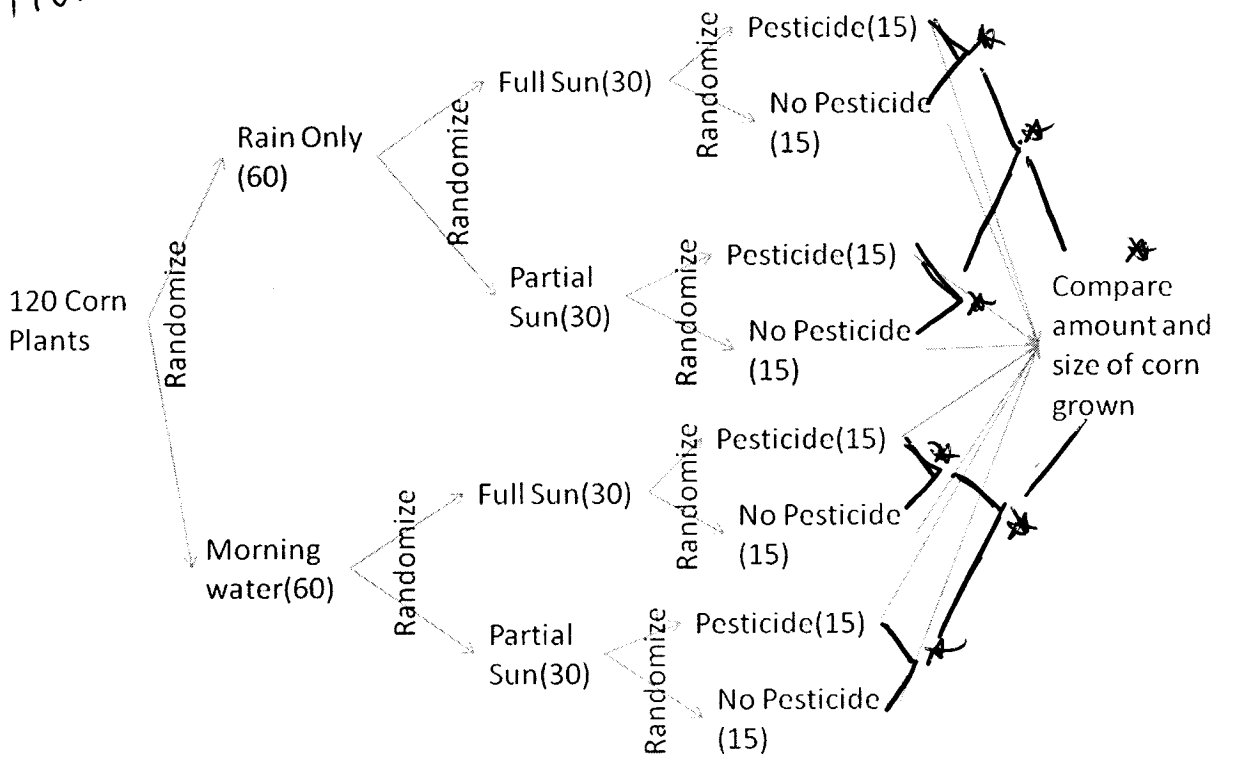
(2) A food scientist has developed a new type of corn that is to yield greater amounts of corn for harvest. Some factors involved in growing corn are the amount of water (only rain, watered in the morning); the amount of sun(full, partial); and if pesticide was used. You have 120 plants to put into a field for the experiment. Design an appropriate experiment.

The 120 plants will first be randomly assigned to two groups of 60 each; one getting water from the rain only and the other getting extra watering in the morning. Within each of these groups the plants will be randomly assigned to two groups of 30 each; one getting full sun and one getting partial sun. Within each of these groups the plants will be randomly assigned to two groups of 15 each; one getting pesticide and the other not getting any pesticide. The plants will be tended to for a season and the amount and size of the corn will be measured within each group and the groups will be compared to each other.

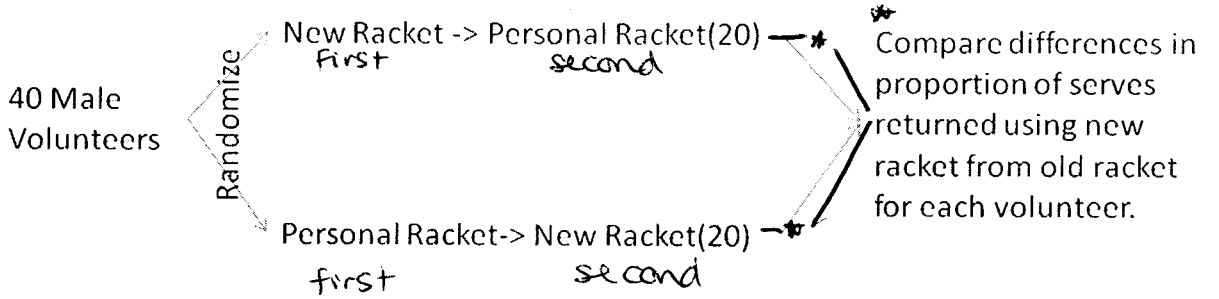
option 1:



option 2:
on flipchart

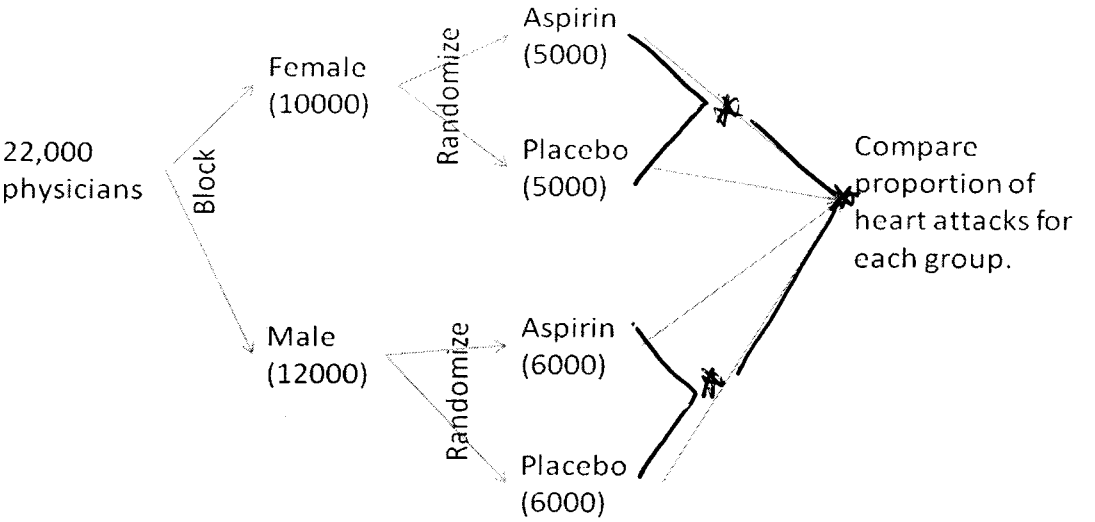
3. A new tennis racquet manufacturer has designed a new racquet. The manufacturer claims the new racquet will allow the user to return more serves than any racquet currently sold. A group of 40 male volunteers who currently play tennis and own their own racquets agree to participate in the study. Design an experiment that would test the manufacturer's claim.

Randomly assign each of the 40 male volunteers to one of two groups. The first will use their personal racket to try to return 20 serves and then use the new racket to return 20 serves from a serving machine. The second group will use the new racket first and then their personal racket to return 20 serves each time. At the end of the study the difference in the proportion of serves returned with the new racket to the proportion of serves returned with their personal racket will be compared for each of the male volunteers.



4. Can aspirin help prevent heart attacks? The Physicians' Health Study, a large medical experiment involving 22,000 physicians (10,000 female and 12,000 male) will volunteer for an experiment to prove this. Design an appropriate experiment to test this.

The physicians would first be blocked into two groups of 10,000 females and 12,000 males. Among the females each will be randomly assigned to one group of 5,000 that will get an aspirin each day and the other 5,000 will get a placebo each day. Among the males each will be randomly assigned to one group of 6,000 that will get an aspirin each day and the other 6,000 will get a placebo each day. After an appropriate time frame(a few years), the number of heart attacks will be recorded in each group. The proportion of those that had heart attacks will be compared between the groups.

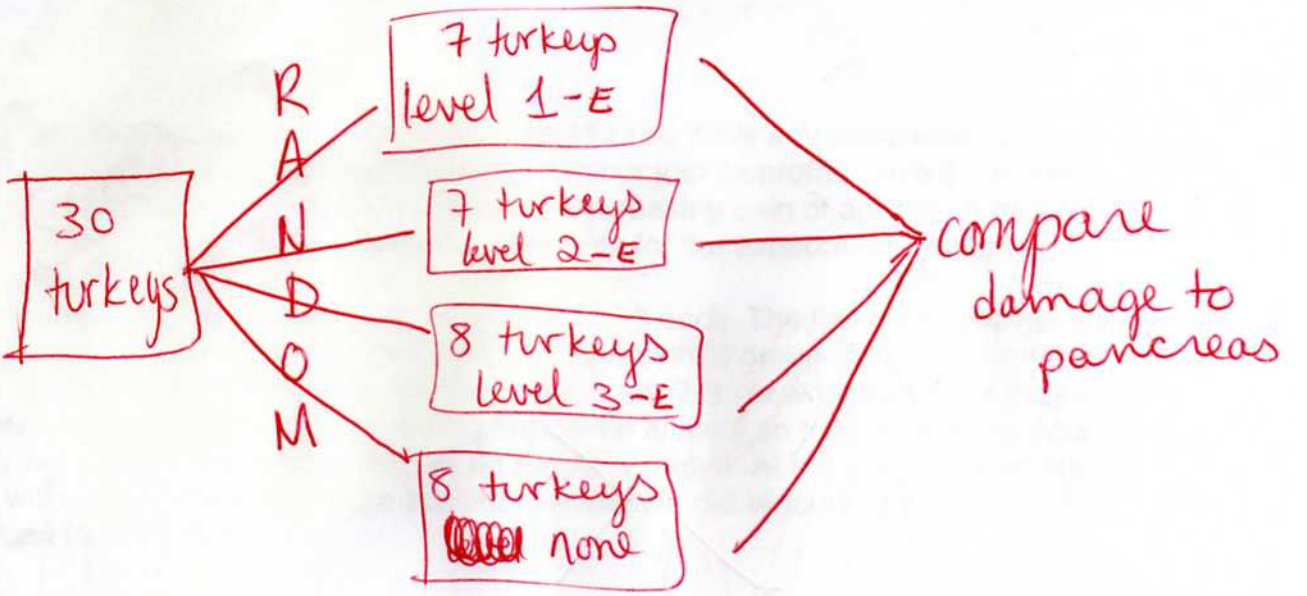


5

6. Turkeys raised commercially for food are often fed the antibiotic salinomycin to prevent infections from spreading among the birds. Salinomycin can damage the birds' internal organs, especially the pancreas. A researcher believes that adding vitamin E to the diet may prevent injury. He wants to explore the effects of three levels of vitamin E added to the diet of turkeys along with the usual dose of salinomycin. There are 30 turkeys available for the study. At the end of the study, the birds will be killed and each pancreas examined under a microscope. Design an appropriate experiment.

The 30 turkeys will be randomly assigned to three groups of 10. One group will get a full dose of vitamin E. The second group will get a half dose of vitamin E. The third group will get no vitamin E in their diet. At the end of the study the birds will be killed and their

7. A manufacturer of boots plans to conduct an experiment to compare a new method of waterproofing to the current method. The appearance of the boots is not changed by either method. The company recruits 100 volunteers in Seattle, where it rains frequently, to wear the boots as they normally would for 6 months. At the end of 6 months, the boots will be returned to the company to be evaluated for water damage. Design an appropriate experiment.



* each trt. receives a dose of salinomycin